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Do Companies View Bribes as a Tax? Evidence on the Tradeoff between Corporate Taxes and Corruption in the Location of FDI

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3 Do Companies View Bribes as a Tax? Evidence on the Tradeoff between Corporate Taxes and Corruption in the Location of FDI

Timothy Goodspeed, Jorge Martinez-Vazquez, and Li Zhang

A large literature has documented the fact that high corporate taxes in host countries deter foreign direct investment. In a series of meta-studies, de Mooij and Ederveen (2003, 2008) find that the average estimated tax semi-elasticity of FDI is –3.3 percent. Altshuler, Grubert, and Newlon (2001) find that the elasticity of investment with respect to after-tax host-country rates of return for US multinationals increased (in absolute value) from –1.5 in 1984 to –2.8 in 1992. Altshuler and Grubert (2004) find evidence of investment tax elasticities of about 3 over the years 1992, 1998, and 2000. Summarizing much of the research on the taxation of multinationals, Gordon and Hines (2002) write that the econometric work of the preceding fifteen years "provides ample evidence of the sensitivity of the level and location of FDI to its tax treatment."

Much of the work in this area has concentrated on developed countries. There are, however, some studies of developing countries, surveyed in Madies and Dethier (2010, p. 20). "Most empirical studies," Madies and Dethier write, "conclude that FDI inflows into developing countries are sensitive, to various degrees, to corporate income taxation and fiscal incentives." For instance, Hines (2001) finds some evidence that Japanese investment is higher when tax-sparing agreements relieve the usual tax that would be owed on profits generated in low-tax developing countries. Klemm and Van Parys (2009) find that tax incentives help attract FDI in their sample of developing countries but do not increase gross private fixed capital formation or growth. Banga (2003) examines FDI flows in South, East, and Southeast Asia and finds that fiscal incentives attract FDI from developing countries and that the presence of a bilateral investment treaty is important for developed countries. Cleeve (2008) studies foreign investment going to sub-Saharan Africa and finds that tax holidays attract FDI. With respect to

emerging market economies, Bellak and Leibrecht (2009) find significant tax effects for Central and Eastern Europe, with an estimated semi-elasticity ranging from –3.3 to –4.6.

Yet recent evidence suggests that there is something different about the relationship between corporate taxes and FDI in developing countries. For instance, Goodspeed, Martinez-Vazquez, and Zhang (2011) find that high host-country corporate taxes negatively affect incoming FDI in host countries that are developed, but not in host countries that are developing. Dharmapala and Hines (2009) find that taxes affect US FDI in well-governed tax havens, but not in poorly governed ones. Fatica (2009) finds that the sensitivity of foreign investment to the tax rate varies with the quality of institutions in the host country. These mixed results suggest some natural questions. Is there something different between developing and developed countries that affects the estimated tax elasticity? Are the results of previous studies that concentrate on developed countries (particularly the United States), or analyze samples that mix developing and developed countries, primarily due to the sampling of developed countries? If so, what lies behind the lack of sensitivity of FDI to corporate tax in some developing countries?

Our starting point is the finding by Goodspeed, Martinez-Vazquez, and Zhang (2011) that FDI entering developing countries and FDI entering developed countries react differently to corporate taxes. Though there are several possible explanations, in this chapter we investigate only one: that firms perceive a tradeoff between taxes and bribes. Previous papers, most importantly Wei 2000a and Wei 2000b, have reported that corruption negatively affects FDI, and we found the same in our earlier paper (cited above). Corruption effects may also interact with tax effects, however, so the relationship may not be as simple as it first appears. And there have been very few investigations of the impact of the interaction of corruption and taxation on FDI, Wei 2001 being an important exception. Wei finds negative effects of both taxes and corruption on FDI but no evidence of an interaction effect. Dharmapala and Hines (2009) also find a significant interaction of governance and taxes for US multinationals. Because their focus is on the determinants of tax havens, their interpretation is that small countries that are poorly governed may recognize that the elasticity of foreign investment to taxes is smaller for them, and hence decline to lower taxes to attract foreign investment.

One reason that good governance and taxation may interact is that corruption may itself be interpreted as a sort of tax on doing business.

If tax administration in developing countries is weak, the more important "tax" in a developing country might be bribery payments or a lack of the rule of law. Formal tax payments to the government might go unpaid without consequence if tax administration is weak, while bribery payments may be less easily avoided since bribes are usually enforced by the bribe-taker at the moment of the transaction. Such bribes could go directly to corrupt tax officials in exchange for overlooking tax evasion. In principle, bribery payments and tax payments could be substitutes or complements. If they are complements, bribery payments would be paid in addition to full tax payments. It seems more likely that they are substitutes (so that firms would have to pay less than the full tax on a combination of bribery and tax payments) when the bribe payments go directly to tax bureaucrats in exchange for reduced tax payments, since a corporation presumably would not agree to pay more than the legal tax liability.

Consider now how this interaction of bribery and taxation affects FDI. The relationship between the two will affect how each alone affects FDI. If bribes and tax payments are substitutes, the impact of each alone on FDI will be lessened when both are present, whereas the impact of each alone on FDI will be strengthened if they are complements. Take, for instance, the effect of taxes on FDI. Many studies have found that taxes negatively affect FDI. But if corruption and taxes are substitutes, the presence of corruption should be expected to weaken the importance of formal taxation in determining FDI location. That is, the elasticity of FDI to taxes would be lower in the presence of corruption; in the extreme it should be zero, as any effect of taxation could be offset with a sufficiently large bribe. This is a question that has not been closely examined in the literature.

By the same token, the impact of corruption on FDI location would be affected by the presence of taxation. If taxes and corruption are substitutes, the impact of corruption on FDI location would be most acute when taxes are low. Conversely, if taxes are high, the impact of corruption on FDI location would not be as important. The reason could be that when taxes are excessively high corruption allows multinationals to avoid excessive taxation. The argument is that when there are excessive taxes, regulations, or bureaucratic red tape in setting up a business, paying a bribe may "grease the wheels" and allow a business to avoid the constraints imposed by excessive government (see, e.g., Leff 1964; Liu 1985), including taxes. This does not, however, necessarily mean that such an economy is more efficient. For example,

Shleifer and Vishny (1993) argue that bribes are actually much more distortionary and costly to an economy than tax payments.

Almost no one has examined this relationship between corporate taxes and corruption empirically, Wei (2001) again being the exception. Wei finds negative effects of both taxes and corruption on FDI but no evidence of an interaction effect.

Our findings indicate that there is a tradeoff between taxes and bribes. We find that taxes and corruption are substitutes so that the impact of taxes on FDI will be lessened when corruption is higher. Since corruption tends to be more prevalent and tax administration weaker in developing countries, this helps explain why, in general, corporate taxes have less of an impact on the level of FDI in developing countries. The substitutability result also suggests that the impact of corruption on FDI location is lessened when taxes are high. This does not mean that an economy in which taxes and corruption are high is more efficient than an economy with high taxes and low corruption, however.

1 Data Description

Our main objective in this chapter is to explore empirically a possible explanation for our earlier finding that corporate taxes are important for FDI going to developed countries but not for FDI going to developing countries. The explanation that we explore is that multinationals view taxes and corruption as substitutes. We use a panel data set with information on 25 developing and 27 developed destination countries from 1985 to 2002. The FDI source countries are the OECD countries. For our dependent variable we use the OECD bilateral data on the (log of) the total stock of FDI in a destination country in each year that comes from each OECD source country. There are reasons to view data coming developing countries with care, and the OECD's source-country data may be the most reliable such data available.

We follow the previous literature and control for factors that consistently have been found to be determinants of FDI: distance, population, GDP, the unemployment rate, and exports; the last variable, exports, is lagged to try to correct for potential endogeneity. The distance between countries is suggested by the gravity equation as a determinant of FDI. The unemployment rate controls for business cycle effects. Population is a proxy for market size, which, ceteris paribus, should attract more FDI. Exports control for the openness of an economy. Holding population constant, GDP is a measure of wealth and can be roughly inter-

preted as controlling for the return on investment or marginal product of capital. Generally, poorer countries lack capital and hence should be expected to have a higher return on investment than wealthier countries, ceteris paribus, which implies an inverse relationship between GDP and FDI. We also include a source-country dummy to control for any observable or unobservable source-country factors that affect FDI and that do not vary over time.

Our corporate tax variable is computed as the minimum of (1) the effective tax rate faced by US multinationals calculated using data from the Bureau of Economic Analysis (BEA) and (2) the statutory tax rate from data from the Office of Tax Policy Research (OTPR). This variable takes into account the fact that the statutory tax rate may be too high because of accelerated depreciation and other investment allowances, tax holidays, and so forth, that may be granted by the host country. The effective tax rate in (1) is a simple measure of foreign taxes paid in the host country divided by profits; if it is lower than the statutory rate, we use this measure as a more accurate reflection of the true tax burden. This measure is also used by Hines and Rice (1994) and by Dharmapala and Hines (2009). We also lag our tax variable to try to correct for any endogeneity.

We use two different measures of good governance. The first is a measure of corruption, the "Corruption Perception Index" from Transparency International. This index is commonly used—e.g., by Wei (2000a,b)—and has the most coverage for the countries in our sample. This index ranges in value between 0 and 10. It uses a higher number for less corruption so in our empirical work we subtract the index from 10 to facilitate interpretation.

Our second measure of good governance is the somewhat different rule-of-law index of Kaufmann et al. (2009, p. 6), which is designed to measure "perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence." This measure is somewhat different from pure corruption, as it deals more with property rights. It is available only every two years during our sample period, so our sample size is smaller for this measure.

We should note that observations of the tax rate and the good governance measures are available for varying numbers of years and countries. In all, 52 countries (25 developing and 27 developed) are covered for the tax rate for the years 1985–2002. The time span is shorter

Table 3.1
Sample countries.

1	*Argentina	27	Italy
2	Australia	28	*Jamaica
3	Austria	29	Japan
4	*Barbados	30	Korea, Republic of
5	Belgium	31	Luxembourg
6	*Brazil	32	*Malaysia
7	Canada	33	*Mexico
8	*Chile	34	Netherlands
9	*China	35	New Zealand
10	*Colombia	36	Norway
11	*Costa Rica	37	*Panama
12	Denmark	38	*Peru
13	*Dominican Republic	39	*Philippines
14	*Ecuador	40	Portugal
15	*Egypt	41	*Saudi Arabia
16	Finland	42	Singapore
17	France	43	Spain
18	Germany	44	Sweden
19	Greece	45	Switzerland
20	*Guatemala	46	*Thailand
21	*Honduras	47	*Trinidad and Tobago
22	Hong Kong	48	*Turkey
23	*India	49	United Arab Emirates
24	*Indonesia	50	United Kingdom
25	Ireland	51	United States
26	Israel	52	*Venezuela

*developing countries

for our other variables. The corruption index covers 47 countries from 1995 to 2002. The rule-of-law index covers all the 52 countries, but only for the years 1996, 1998, 2000, and 2002. We limit our regressions to include countries and years for which all relevant information is available. The countries covered, their development statuses, the definition and sources of our variables, and summary statistics are presented in tables 3.1–3.3.

2 Empirical Analysis and Estimation Results

Our primary purpose is to explore whether taxes and good governance are viewed as substitutes by multinationals in their foreign investment

Table 3.2
Data sources.

Variable	Further explanation	Source	Years
FDI	FDI stocks	Bilateral OECD data	1985–2002
Population	In 10,000s	World Development Indicator (WDI) 2006	1985–2002
GDP	In current dollars	WDI 2006	1985–2002
Exports	Goods and services	World Bank	1985–2002
Tax Rate	The minimum of the BEA tax rate and statutory tax rate, where BEA tax rate = foreign income taxes/ (foreign income tax + net income) of all affiliates for US firms operating abroad in each country and year	Calculated with data from Bureau of Economic Analysis (BEA) and OTPR for statutory rate	1985–2002
Corruption Perception Index	Ranges from 0 to 0, with 10 denoting least corrupt, transformed by subtracting from 10 for ease of interpretation	Transparency International	1995–2002
Rule of Law	One of the six governance indicators from the Aggregate Governance Indicators 1996–2008. Ranges from –2.5 to 2.5, transformed to 0 to 5, with higher values corresponding to better governance outcomes.	Kaufmann, Kraay, and Mastruzzi 2009	Biannual data for 1996–2002, and annual data for 2003–2008
Distance	Distance between capital cities of two countries	CEPII	Constant over years
Unemployment Rate	Total unemployment rate, percentage of total unemployed in total labor force	World Development Indicator (WDI) 2006	1985–2002

Table 3.3
Summary statistics.

Variable	Observations	Mean	SD
FDI Stock	9,254	4,171	15,060
Tax Rate	26,136	31.35	18.23
Corruption Perception Index	9,546	4.097	2.533
Rule of Law	5,920	3.206	0.957
Unemployment	23,060	7.838	4.780
Export	22,710	72,579	105,246
Population	26,640	7,465	20,423
GDP	26,640	432,743	1,136,175
Distance	26,640	7,312	4,729

decisions. To do this, we investigate three specifications below. The first specification is designed to set the stage. In this case, we allow the coefficient on the tax rate to vary between developed and developing countries:

$$\begin{aligned}\text{LogFDI}_{ijt} = {} & \alpha_0 + \alpha_1 \text{Dev\_Dum}_i + \alpha_2 \text{Year\_Dum}_t + \alpha_3 \text{Source\_Dum}_j \\ & + \alpha_4 \text{Tax}_{ijt} + \alpha_5 \text{Governance}_{ijt} + \alpha_6 \text{Tax*Dev\_Dum}_{ijt} \\ & + \sum \phi_n \text{Controls}_{nijt} + \text{u}_{ijt}\,, \end{aligned} \tag{1}$$

where FDI_{ijt} is the stock of FDI in destination country i coming from source country j in year t, Dev_Dum_i represents a developing/developed-country dummy, Year_Dum_t represents a year dummy, Source_Dum_j represents a dummy for the source country, Tax_{ijt} represents the effective corporate tax rate, Governance is a measure of governance (either bad governance—the corruption perception index—or good governance—the rule-of-law index) and Controls_{nijt} represents control variable n.

A main finding from this first specification is that the marginal impact of taxes on the stock of FDI differs depending on whether the host country is developed or developing. We find that lower corporate taxes in the destination country increase incoming FDI in developed countries, but not in developing countries. Our second specification investigates one possible explanation for this result. It allows for an interaction effect between governance and taxes, but does not allow the coefficients to vary between developed and developing countries. It is similar to equation 1 above, but has an interaction between gover-

nance and the effective corporate tax rate and does not have a developing-country dummy:

$$\begin{aligned}\text{LogFDI}_{ijt} = {} & \alpha_0 + \alpha_1 \text{Year\_Dum}_t + \alpha_2 \text{Source\_Dum}_j \\ & + \alpha_3 \text{Tax}_{ijt} + \alpha_4 \text{Governance}_{ijt} + \alpha_5 \text{Tax*Governance}_{ijt} \\ & + \sum \phi_n \text{Controls}_{nijt} + \text{u}_{ijt} \ . \end{aligned} \tag{2}$$

Our third specification investigates the issue further by asking whether any interaction effect between governance and taxes differs between developing and developed countries. The third specification adds a triple interaction of governance, the developing-country dummy, and the tax rate, adds each of these variables individually, and adds a full set of double interaction terms:

$$\begin{aligned}\text{LogFDI}_{ijt} = {} & \alpha_0 + \alpha_1 \text{Dev\_Dum}_i + \alpha_2 \text{Year\_Dum}_t \\ & + \alpha_3 \text{Source\_Dum}_j + \alpha_4 \text{Tax}_{ijt} \\ & + \alpha_5 \text{Governance}_{ijt} + \alpha_6 \text{Tax*Governance}_{ijt} \\ & + \alpha_7 \text{Tax*Dev\_Dum}_{ijt} + \alpha_8 \text{Governance}_{ijt} \text{*Dev\_Dum}_{ijt} \\ & + \alpha_9 \text{Tax*Governance*Dev\_Dum}_{ijt} + \sum \phi_n \text{Controls}_{nijt} + \text{u}_{ijt}. \end{aligned} \tag{3}$$

In all specifications, the semi-log specification implies a nonlinear, exponential relationship between the stock of FDI and the explanatory variables. The pooled nature of the data can create a downward bias in the standard errors due to repeated cross-sections (leading to unwarranted significance of coefficients). We therefore present clustered standard errors, which allows for an arbitrary correlation in the errors of the cluster (the source-destination pair in our case) for all of our regressions.

Table 3.4 presents results for our three specifications using the corruption perception index of Transparency International. Table 3.5 presents the results using the rule-of-law measure.

The first column in table 3.4 presents results with the tax rate, the corruption perception index, the tax rate interacted with the a dummy variable that takes the value of one for developing countries and zero for developed countries, and our control variables (including the dummy for developed countries as an intercept shifter). Except for unemployment and the dummy variable for a developing country, all of our control variables are significant. Population has a positive sign, indicating that a larger market attracts FDI. GDP has a negative sign,

Table 3.4
FDI, taxes, and corruption (corruption perception index measure). Dependent variable: log of FDI stock.

	(1)	(2)	(3)
Effective corporate tax rate	–0.0340***	–0.0421***	–0.0364***
	(0.0062)	(0.0095)	(0.0106)
Corruption	–0.111***	–0.206***	–0.149*
	(0.0317)	(0.0551)	(0.0869)
Corruption × Tax rate		0.0041**	0.0012
		(0.00199)	(0.0031)
Tax rate × Developing-country dummy	0.0218**		–0.0989**
	(0.0105)		(0.0503)
Corruption × Developing-country dummy			–0.336*
			(0.188)
Corruption × Developing-country dummy × Tax rate			0.0175**
			(0.0079)
Developing-country dummy	–0.476		1.876
	(0.337)		(1.177)
Unemployment	0.0174	0.0150	0.0167
	(0.0132)	(0.0129)	(0.0132)
Population	0.0043*	0.0046*	0.0049*
	(0.0026)	(0.0025)	(0.0026)
GDP	–0.0031***	–0.0033***	–0.0031***
	(0.0011)	(0.0011)	(0.0011)
Exports (lagged)	0.0638***	0.0636***	0.0639***
	(0.0068)	(0.0067)	(0.0068)
Distance	–0.114***	–0.112***	–0.116***
	0.0043*	0.0046*	0.0049*
Constant	10.58***	10.78***	10.47***
	(0.246)	(0.281)	(0.311)
Year dummy	Yes	Yes	Yes
Source dummy	Yes	Yes	Yes
Observations	4108	4108	4108
R^2	0.711	0.711	0.712

Clustered and robust standard errors are in parentheses. Asterisks denote $p < 0.01$ (***), $p < 0.05$ (**), and $p < 0.1$ (*).

Table 3.5
FDI, taxes, and rule of law. Dependent variable: log of FDI stock.

	(1)	(2)	(3)
Effective corporate tax rate	–0.0411***	0.0656***	0.0633
	(0.00605)	(0.0209)	(0.0636)
Rule of law	0.609***	1.064***	1.647***
	(0.129)	(0.161)	(0.489)
Rule of law × Tax rate		–0.0258***	–0.0244
		(0.00566)	(0.0155)
Tax rate × Developing-country dummy	0.0582***		–0.0380
	(0.0107)		(0.0751)
Rule of law × Developing-country dummy			–1.172*
			(0.628)
Rule of law × Tax rate × Developing-country dummy			0.0176
			(0.0225)
Developing-country dummy	–1.021***		3.868*
	(0.344)		(2.281)
Unemployment	0.0292**	0.0245*	0.0283*
	(0.0140)	(0.0138)	(0.0145)
Population	0.0087***	0.0088***	0.0075***
	(0.0028)	(0.0028)	(0.0028)
GDP	–0.0032***	–0.0035***	–0.0035***
	(0.0012)	(0.0012)	(0.0012)
Exports (lagged)	0.0651***	0.0653***	0.0673***
	(0.0068)	(0.0067)	(0.007)
Distance	–0.110***	–0.106***	–0.106***
	(0.0144)	(0.0141)	(0.0145)
Constant	7.809***	5.924***	3.302
	(0.614)	(0.694)	(2.094)
Year dummy	Yes	Yes	Yes
Source dummy	Yes	Yes	Yes
Observations	2186	2186	2186
R^2	0.709	0.707	0.712

Clustered and robust standard errors are in parentheses. Asterisks denote $p < 0.01$ (***), $p < 0.05$ (**), and $p < 0.1$ (*).

which we interpret as controlling for the marginal product of capital or return on investment. Exports, interpreted as controlling for openness, are positively related to FDI. Distance has a negative relation to FDI, as suggested by the gravity equation.

The first thing to note is the highly significant and negative effect of taxes on FDI for developed countries, but not for developing countries. Note that the specification includes not only the tax rate, but also its interaction with a developing-country dummy, which takes on a value of one if a country is developing and zero if the country is developed. Thus, the coefficient on the tax rate is that for developed countries. The coefficient of –0.034 is the semi-elasticity of FDI to the tax rate, and at 3.4 percent it is almost identical to the 3.3 percent mean semi-elasticity of 427 studies as reported by de Mooij and Ederveen (2008, p. 12) and mentioned in the introduction to the present chapter. Evaluating at the sample mean tax rate of 31 percent yields an elasticity of FDI to the tax rate of about –1 for developed countries. That is, a 1 percent increase in the tax rate decreases FDI by about 1 percent for developed countries, somewhat lower than the estimates of Altshuler et al. cited in the introduction. For developing countries the coefficient is much lower; adding the coefficient on the interaction term yields a coefficient for developing countries of only –0.012. Moreover, the standard error associated with this coefficient implies that the point estimate is not significantly different from zero for developing countries. Hence, these results reconfirm the findings of Goodspeed, Martinez-Vazquez, and Zhang (2011) that host countries' corporate taxes affect FDI going to developed countries but do not affect FDI going to developing countries. Though it is possible that some of this effect could be due to some resource-rich developing countries where location-specific rents overwhelm any tax effect, we do not pursue that line of reasoning here. We leave that for future investigation and simply note here that developed countries are also sometimes resource-rich.

The second thing to note about the results in column 1 of table 3.4 is the significant negative effect of host-country corruption on incoming FDI. Evaluating the coefficient of –0.111 at the mean corruption value of 4.1 yields an elasticity of FDI with respect to the corruption measure of –0.45. That is, a 10 percent rise in the corruption index yields a 4.5 percent decrease in FDI. This implies that corruption deters FDI, and is consistent with the hypothesis that corruption itself is a type of tax.

The question remains as to why FDI entering developing countries seems to react less to host-country corporate taxes. As was noted above, one possibility is that taxes and corruption interact. If corruption is viewed by multinationals as a tax on doing business, and if tax administration in developing countries is weak, the more important "tax" in a developing country might be the bribery system. Moreover, Shleifer and Vishny (1993) argue that bribes are actually much more distortionary and costly to an economy than tax payments.

Column 2 in table 3.4 begins to assess this argument by interacting the tax rate with the corruption index instead of the developing-country dummy. The result is a positive and significant coefficient, suggesting that companies that invest in foreign countries do in fact view corruption and bribery as substitutes to some extent. Host-country corruption has a greater impact on FDI when taxes are low, and host-country taxes have a greater impact on FDI when corruption is low. If taxes are zero, the corruption coefficient is –0.206 (resulting in an elasticity twice that implied by column 1), whereas it is –0.08 evaluated at the mean tax rate in the sample of 31 percent (resulting in an elasticity slightly lower than implied by column 1). If corruption is zero, the tax coefficient is –0.042 (somewhat higher than that obtained in column 1); if corruption is at its maximum in the sample, the tax coefficient is close to zero.

Column 2 of table 3.4 thus supports the proposition that taxes and corruption are substitutes. This suggests that the result that host corporate taxes do not affect FDI entering developing countries is due to corruption in developing countries, combined perhaps with weak tax administration. However, there may be other reasons that developing countries are different. To test this, column 3 adds a triple interaction of corruption, the tax rate, and the developing-country dummy, along with double interactions of the tax rate and corruption, the developing-country dummy and the tax rate, and the developing-country dummy and corruption.

We begin our discussion of column 3 by focusing on the tax rate. The interaction of corruption with the tax rate is insignificant in column 3, so the coefficient on the tax rate of –0.0364 is that for developed countries. Moreover the coefficient is not significantly different from that of column 1. The coefficient for developing countries involves several terms: –0.0364 – 0.0989 (from interaction between the tax rate and the developing-country dummy) + 0.00117 × corruption (from

interaction between the tax rate and corruption) + 0.0175 × corruption (from the triple interaction). Evaluating at the mean corruption value for developing countries of 6.5 and adding together yields a coefficient of –0.014 for developing countries. This is consistent with the findings of column 1, but gives a more nuanced picture: the marginal effect of taxes is low for developing countries with high corruption, whereas those with low corruption may indeed find that taxes are an important factor in FDI location. When corruption is high, bribes that go to corrupt tax officials may make a high tax rate irrelevant, as the taxes are evaded, and the level of corruption becomes the more important force for FDI. From a domestic political viewpoint, high tax rates may protect the interests of corrupt tax officials in soliciting bribes from foreign investors.

Turning to the coefficient on corruption in column 3, we see that the value for developed countries is –0.149, since the interaction of corruption and the tax rate is insignificant and the value for the developing-country dummy is zero. This is somewhat higher than the estimate for column 1. For developing countries, the estimate is –0.149 – 0.336 (from the interaction between corruption and the developing-country dummy) + 0 0.00117 × tax rate (from the interaction between the tax rate and corruption) + 0.0175 × tax rate (from the triple interaction). Adding yields a coefficient of –0.485 + 0.0187 × tax rate for developing countries. This is a striking result. If tax rates are low in the host country, then corruption indeed lowers host-country FDI. However, as the tax rate rises, the impact of corruption becomes smaller. Indeed, if tax rates are very high, corruption actually leads to higher FDI in developing countries. The explanation would appear to be that with excessive corporate taxation, corruption, presumably in the form of bribing the tax authorities, allows multinationals to avoid the high taxes, thus increasing FDI.

An alternative variable to the corruption perception index is the rule-of-law measure of Kaufmann, Kraay, and Mastruzzi (2009). This measure, as described above, is more focused on property rights than on bribes

Table 3.5 presents results based on the rule-of-law measure. In general, the results are similar to those presented in table 3.4, although the coefficients in the specification with the triple interaction have less statistical significance.

We begin by discussing the results for column 1. All control variables have the same sign as in table 3.4, and all are significant, including

unemployment (which was insignificant in table 3.4). The coefficient on the corporate tax rate is that for developed countries and is negative and significant, with a slightly higher coefficient of –0.041, and a correspondingly higher elasticity estimate of about –1.25. The estimate for developing countries is 0.0171—a positive number that may at first be puzzling. However, considering the findings of columns 2 and 3 of table 3.4 (that corruption and taxes in fact interact), this could reflect a similar phenomenon with respect to taxes and the rule of law. The coefficient on the rule of law is positive and significant—greater respect for property rights increases FDI. The elasticity of FDI with respect to the rule of law evaluated at the mean is close to 2.

Column 2 of table 3.5 uses an interaction of the tax rate with the rule of law instead of column 1's interaction of the tax rate with a developing-country dummy. As in table 3.4, there is a significant interaction effect suggesting that the rule of law and corporate taxes are viewed as substitutes by multinational firms. When the rule of law is high, the corporate tax deters FDI, but at low levels of the rule of law the corporate tax rate actually has a positive effect on FDI. Evaluated at the mean rule-of-law value of developing countries, the coefficient on the corporate tax rate is very close to zero (0.004). Evaluating at the mean rule-of-law value of developed countries, the coefficient on the corporate tax rate is –0.038, close to the value estimated in column 1 of table 3.5 as well as to estimates from table 3.4. The results of column 2 thus support the result that FDI responds to corporate taxes in developed but not developing countries. The mechanism suggested by this column is that the rule of law interacts with the tax rate, and when the rule of law is low (as it is in developing countries) the marginal impact of corporate taxes on FDI location is blunted.

The coefficient of the rule of law in column 2 is positive and significant, but its impact is reduced as the corporate tax rate rises. If the corporate tax rate were zero, the elasticity of FDI and the rule of law would be almost 3.4 when evaluated at the mean value for the rule of law. As the corporate tax rate rises, the elasticity falls, however. The elasticity of FDI and the rule of law fall to 2.6 when the tax rate is at its mean in the sample (31.4 percent). This result is similar to the result of table 3.4 with respect to corruption: when corporate taxes become excessively high, marginal improvements in property rights have less of an effect on FDI location.

The final column of table 3.5 adds the triple interaction term as well as double interaction terms. The rule of law is positive and significant

and the interaction of the rule of law and the tax rate is negative, but not significant. The rule of law interacted with the developing-country dummy is negative and significant, but the triple interaction term is insignificant. As many of the interaction terms are insignificant, this column reveals less, but it suggests a high elasticity of FDI to the rule of law for developed countries (5.3), with a somewhat lower but still relatively high elasticity for developing countries (1.5). These results seem to confirm the importance of the rule of law in both developed and developing countries.

3 Conclusion

There is a large literature documenting that high corporate taxes in host countries deter foreign direct investment. However, some recent papers have questioned the robustness of this result in developing countries. Among the papers that do so are Goodspeed, Martinez-Vazquez, and Zhang 2011 (in which we find that host countries' taxes affect FDI entering developed but not developing countries), a 2009 paper by Dharmapala and Hines (who find that taxes affect US FDI in well-governed tax havens but not those that are poorly governed), and a 2009 paper by Fatica (who finds that the sensitivity of foreign investment to the tax rate varies with the institutional quality of the host country).

In this chapter we have investigated one of the possible explanations for a weaker relationship between corporate taxes and FDI in developing countries: the presence of a tradeoff between taxes and corruption. Although some previous papers have documented a negative effect of corruption on FDI, little work has been done on how governance may interact with taxes. In this chapter we hypothesized that the presence of corruption weakens the influence of corporate taxes in the location of FDI because bribes and weak tax enforcement tend to reduce the cost of taxes, and corruption becomes the more important cost for multinationals. Since corruption tends to be more prevalent and tax administration weaker in developing countries, this helps explain why, in general, corporate taxes have less of an impact on FDI location in the developing countries.

We have explored the interaction of corporate taxes, governance, and developing countries, using several empirical specifications. We have used two measures of governance in our specifications, one a corruption index and the other a measure of the rule of law measure.

Before summarizing our findings, we should note that our results use aggregate data and that identification comes from cross-sectional variation. Further research using disaggregated data and other identification strategies would be highly desirable.

In our estimations we found, first, a highly significant and negative effect of taxes on FDI for developed countries, but not for developing countries, and a separate individual significant negative effect of corruption in the host country and positive effect of the rule of law on incoming FDI. Second we found that foreign investors view taxation and bribery to some extent as substitutes. Host-country corruption has a greater effect on FDI when taxes are low, and host-country taxes have a greater effect on FDI when corruption is low. This suggests that one part of the explanation of our first finding that host-country corporate taxes do not affect FDI entering developing countries is that corporate taxes and corruption are acting as substitutes in developing countries. Our results with respect to the rule of law indicate that the same reasoning would explain Dharmapala and Hines' result that low taxes in tax havens affect FDI if the tax haven is well governed but not if the tax haven is poorly governed.

Third, we found that the marginal effect of taxes is low for developing countries with high corruption while developing countries with low corruption may indeed find that taxes are an important factor in FDI location. The explanation is that bribes that go to corrupt tax officials make a high tax rate irrelevant as the taxes are evaded. We also found that the marginal effect of corruption on FDI location falls as the corporate marginal tax rate rises. The explanation would appear to be that with high levels of formal taxation corruption allows foreign investment to avoid the excessively high taxes. But the result is likely to be more costly for the host economy as suggested by the argument of Shleifer and Vishny (1993).

From the viewpoint of political economy, our results may help to explain why it is still common to find tax codes in developing countries with high statutory corporate tax rates. Keeping those rates high may protect the interests of corrupt tax officials in soliciting bribes from foreign investors. However, some of those rents may be diminished with the introduction of formal tax holidays and incentives. If the holidays and incentives apply only to foreign investors, this could reduce both the tax burden and bribes solicited from reluctant-to-pay foreign investors, while maintaining rents due to high tax rates and bribes from domestic firms.

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